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Dynamic Structure Factor in Liquid Cesium on the Basis of Time-Scale Invariance of Relaxation Processes

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Abstract

The dynamic structure factor S(k, ω) in liquid cesium near the melting point at T = 308 K is studied by means of Zwanzig-Mori's memory function formalism. The spectra of S(k, ω) are calculated on the basis of the idea of time-scale invariance of relaxation processes in liquid metals, which appear on the fourth relaxation level. The spectra of S(k, ω) obtained are compared with the results of an inelastic neutron scattering measurement. For the description of memory effects we use the statistical presentation of the non-Markovity parameter ε1(k, ω). We find that collective excitations at low wave-vector values have a non-Markovian nature. © 2002 MAIK "Nauka/Interperiodica".

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